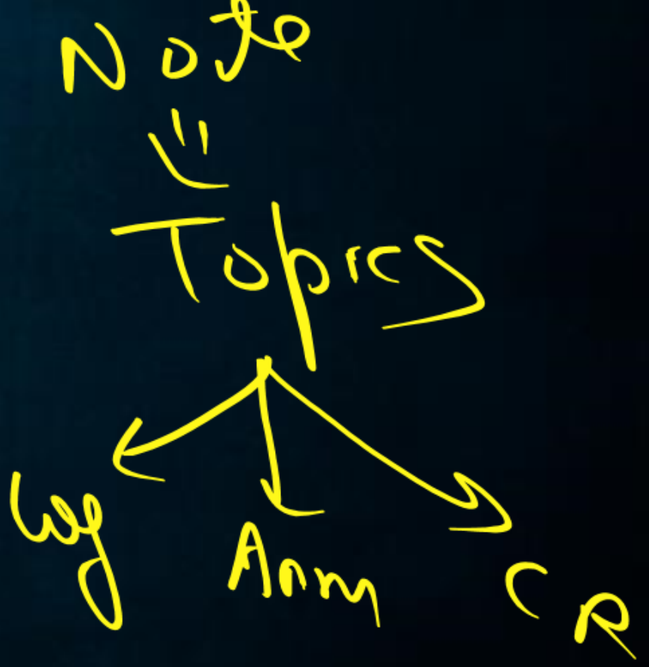
CA FOUNDATION JAN 2026

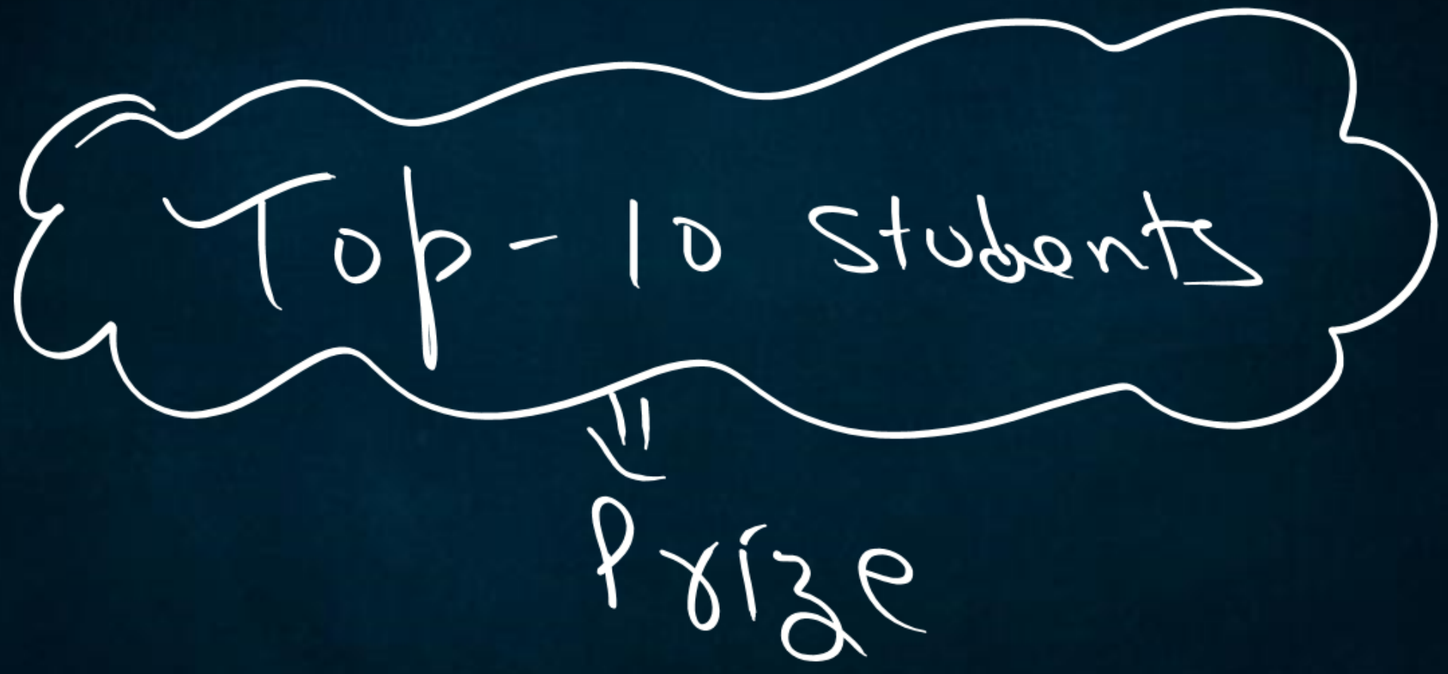
QUANTITATIVE APTITUDE

MARATHON

Topics

- ❑ Concept Revise
- ❑ 500+ Important Questions
- ❑ PYQ'S+MTPS




Top - 10 Students
Prize

Ratio Proportion

Log Indices

Questions - Simplify the ratio $\frac{1}{3} : \frac{1}{8} : \frac{1}{6}$

(a) 8 : 3 : 4 (b) 8 : 5 : 1 (c) 7 : 2 : 6 (d) 1 : 3 : 5

LCM(3,8,6)
= 24

$\frac{1}{3} \times 24 = 8$

$\frac{1}{8} \times 24 = 3$

$\frac{1}{6} \times 24 = 4$

Questions -

If a : b = 2 : 3, b : c = 4 : 5 and c : d = 6 : 7, then a : d is

(a) 24 : 35

(b) 8 : 15

(c) 16 : 35

(d) 7 : 15

$$\frac{a}{b} \times \frac{b}{c} \times \frac{c}{d} = \frac{2}{3} \times \frac{4}{5} \times \frac{6}{7}$$ (2)

$$\frac{a}{d} = \frac{48}{105} = \frac{16}{35}$$

Questions -

The ratio of boys and girls in a college is 7 : 5. If the number of boys increases by 40% and the number of girls increases by 20%, what will be the new ratio of boys and girls?

(a) 4 : 2 (b) 30 : 49 (c) 49 : 30 (d) 49 : 47

$$\frac{B}{G} = \frac{70 + 40\%}{50 + 20\%} = \frac{98}{60} = \frac{49}{30}$$

Questions -

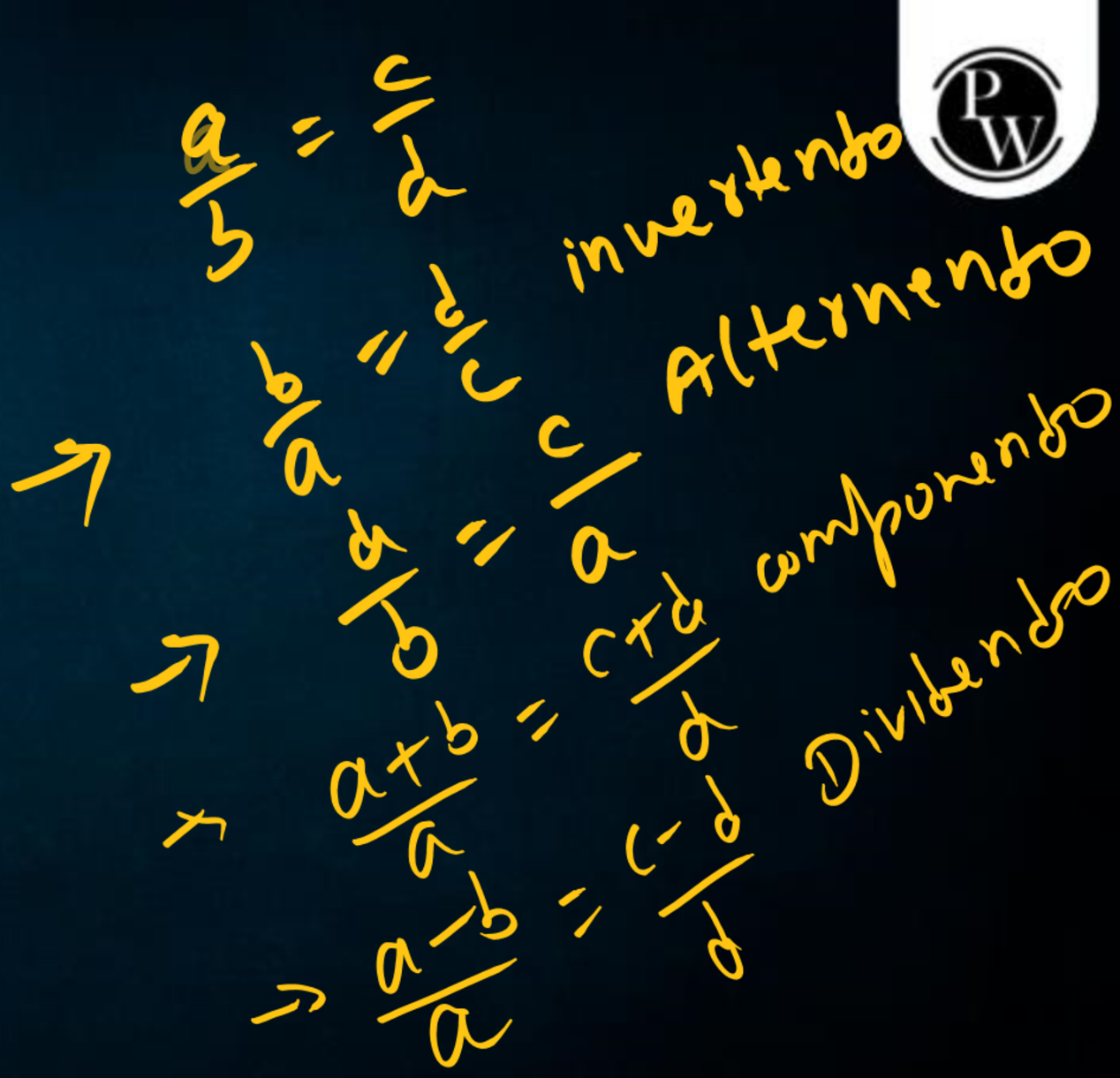
If $\frac{p}{q} = \frac{r}{s} = \frac{p-r}{q-s}$, the process is called

(a) Subtrahendo

(b) Addendo

(c) Invertendo

(d) None of these



Questions -

A dealer mixes rice costing ₹13.85 per kg with rice costing ₹15.54 and sell the mixture at ₹17.60 per kg so he earned a profit of 14.6% on his sale price. The proportion in which he mixes the two qualities of rice is

(a) 3 : 7 (b) 5 : 7 (c) 7 : 9 (d) 9 : 11

S.P = ₹17.60/-

(-) Profit = 17.60 × 14.6%

= 2.5696

Cost = 15.0304

₹13.85/- ₹15.54/-

mixture

= ₹15.03

0.51 1.18

$\frac{Q_1}{Q_2} = \frac{0.51}{1.18} = 0.4322$

$= \frac{51}{118}$

Questions -

The expenditures and savings of a person are in the ratio 4 : 1. If his savings are increased by 25% of his income then what is the new ratio of his expenditure and savings?

(a) 11 : 9

(b) 8 : 5

(c) 7 : 5

(d) 7 : 4

exp = 400 & Savng = 100

Income = 400 + 100 = 500

New Savings = 100 + 25% of income

= 100 + 25% of 500

= 100 + 125

Saving = 225

Expense = 275

$\frac{e}{s} = \frac{275}{225} = \frac{11}{9}$

Questions -

If $2^a = 3^b = 12^c$, then $\frac{1}{c} - \frac{1}{b}$ reduces to ___

(a) $\frac{1}{a}$ (b) $\frac{2}{a}$ (c) $\frac{1}{b}$ (d) None of these

$a \quad b \quad c$

$2 = 3 = 12 = k$

$2 = k \Rightarrow 2 = (k)^{1/a}$

$3 = k \Rightarrow 3 = (k)^{1/b}$

$12 = k \Rightarrow 12 = (k)^{1/c}$

Now

$12 = 2 \times 2 \times 3$

$(k)^{\frac{1}{c}} = k^{\frac{1}{a}} \cdot k^{\frac{1}{a}} \cdot k^{\frac{1}{b}}$

$(k)^{\frac{1}{c}} = (k)^{\frac{2}{a} + \frac{1}{b}}$

Now $\frac{1}{c} = \frac{2}{a} + \frac{1}{b}$

$\frac{1}{c} - \frac{1}{b} = \frac{2}{a}$

$\frac{1}{b} + \frac{1}{c} - \frac{2}{a} = 0$

Questions -

Given log 2 = 0.3010 and log 3 = 0.4771, the value of log 6 is

(a) 0.9030 (b) 0.9542 (c) 0.7781 (d) None of these

$\log(xy) = \log x + \log y$

$\log\left(\frac{x}{y}\right) = \log x - \log y$

$\log(x)^n = n\log x$

Sol:

$\log 6$

$= \log(2 \times 3)$

$= \log 2 + \log 3$

$= 0.3010 + 0.4771$

$= 0.7781$

Questions -

$$\log_{11}\left(\left(1-\frac{1}{3}\right)\right)+\log_{11}\left(1-\frac{1}{4}\right)+\log_{11}\left(1-\frac{1}{5}\right)+\cdots+\log_{11}\left(1-\frac{1}{242}\right)$$

(a) 1 (b) 2 (c) −2 (d) None of these

$$\log_{11}\left(\frac{2}{3}\right)+\log\left(\frac{3}{4}\right)+\log\left(\frac{4}{5}\right)+\cdots+\log\left(\frac{241}{242}\right)$$

$$=\log_{11}\left[\frac{2}{3}\times\frac{3}{4}\times\frac{4}{5}\times\frac{5}{6}\cdots\times\frac{240}{241}\times\frac{241}{242}\right]$$

$$=\log_{11}\left(2\times\frac{1}{242}\right)$$

$$=\log_{11}\left(\frac{1}{121}\right)=\log_{11}(121)^{-1}=-1\log_{11}(121)=-(2)$$

$11^{?}=121$

$11^{2}=121$

Questions -

The value of $\log(1^3 + 2^3 + 3^3 + \ldots + n^3)$ is equal to

(a) $3 \log 1 + 3 \log 2 + \ldots + 3 \log n$

(b) $2 \log n + 2 \log(n + 1) - 2 \log 2$

(c) $\log n + \log(n + 1) + \log(2n + 1) - \log 6$

(d) 1

$$1 + 2 + 3 + \cdots + n = \frac{n(n+1)}{2}$$

$$1^2 + 2^2 + 3^2 + \cdots + n^2 = \frac{n(n+1)(2n+1)}{6}$$

$$1^3 + 2^3 + 3^3 + \cdots + n^3 = \left[\frac{n(n+1)}{2}\right]^2$$

$$\log\left[\frac{n(n+1)}{2}\right]^2$$

$$= 2 \log\left[\frac{n(n+1)}{2}\right]$$

$$= 2\left[\log n + \log(n+1) - \log 2\right]$$

Questions -

If $\log \frac{a-b}{2} = \frac{1}{2}(\log a + \log b)$, the value of $a^2 + b^2$ is

(a) 6ab

(b) 8ab

(c) $6a^2b^2$

(d) None of these

$n \log x = \log x^n$

$$2 \log\left(\frac{a-b}{2}\right) = \log ab$$

$$\log\left(\frac{a-b}{2}\right)^2 = \log(ab)$$

$$\Rightarrow \left(\frac{a-b}{2}\right)^2 = ab$$

$$\Rightarrow \frac{a^2+b^2-2ab}{4} = ab$$

$$a^2+b^2-2ab = 4ab$$

$$a^2+b^2 = 6ab$$

Questions -

If $\log x = -2.1204$, the mantissa is

(a) −0.1204

(b) 0.1204

(c) 0.8796

(d) −0.8796

$\log(x) = -2.1204$

$= -1 - 2 - 0.1204 + 1$

$= -3 + 0.8796$

Characteristic + mantissa

integer

fraction

Always positive

$[0, 1)$

Characteristic

Mantissa

Questions -

$$a = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}, \quad b = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$$

The value of $a^2 + b^2$ is

(a) 60

(b) 62

(c) 64

(d) 58

$\infty \frac{1}{a^2} + \frac{1}{b^2}$

$a = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$

$a = \frac{3.968111}{0.504017}$

$a = 7.872968$

$a^2 = 61.9836$

$b = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$

$b = 0.504017$

$\frac{}{3.968111}$

$b =$

$b^2 = 0.01613$

$a = \frac{\sqrt{p}+\sqrt{q}}{\sqrt{p}-\sqrt{q}}$

$\& \; b = \frac{\sqrt{p}-\sqrt{q}}{\sqrt{p}+\sqrt{q}}$

$a^2+b^2 = \left[2\left(\frac{p+q}{p-q}\right)\right]^2 - 2$

$\left[2\left(\frac{5+3}{5-3}\right)\right]^2 - 2$

$= 64 - 2$

$= 62$

Questions -

Incomes of R and S are in the ratio 7 : 9 and their expenditures are in the ratio 4 : 5. Their total expenditure is equal to income of R. What is the ratio of their savings?

(a) 23 : 36

(b) 28 : 41

(c) 31 : 43

(d) 35 : 46

Income = $7x$ & $9x$

Expense = $4y$ & $5y$

Total exp = Income of R

$4y + 5y = 7x$

$9y = 7x$

$\frac{9}{7} = \frac{x}{y} \Rightarrow \frac{9y}{7} = x$

$\frac{S_1}{S_2} = \frac{7x - 4y}{9x - 5y} = \frac{7(9) - 4(7)}{9(9) - 5(7)}$

$= \frac{7\left(\frac{9y}{7}\right) - 4y}{9\left(\frac{9y}{7}\right) - 5y}$

$= \frac{63y - 28y}{81y - 35y}$

$= \frac{35}{46}$

$= \frac{63 - 28}{81 - 35}$

$= \frac{35}{46}$

Questions -

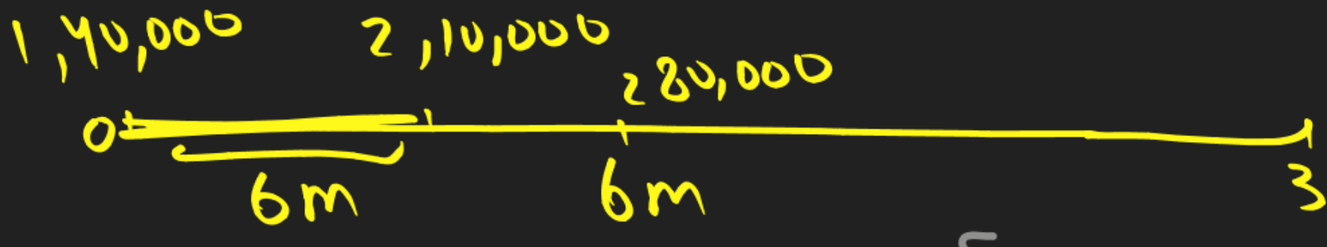
A startup business was initiated by an entrepreneur by investing ₹ 1,40,000. His friend joined him after six months with an amount of ₹ 2,10,000. Thereafter an angel investor joined them with ₹ 2,80,000 after another six months. What should be the ratio of distribution of total earnings, three years months since beginning of business among entrepreneur, his friend and angel investor?

(A) 12 : 15 : 16

(B) 7 : 6 : 10

(C) 42 : 45 : 56

(D) 2 : 3 : 4



$140000 \times 36 : 210000 \times 30 : 280000 \times 24$

$= 84 : 105 : 112$

$= 12 : 15 : 16$

Questions -

The simplified value of $[5a^5b^2 \times 3(ab^3)^2]/(15a^2b)$ is

(A) a^5b^7

(B) a^7b^7

(C) a^5b^5

(D) a^7b^5

$$\frac{5\,a^5\,b^2 \times 3(ab^3)^2}{15\,a^2\,b}$$

$$= \frac{15\,a^5\,b^2\,a^2\,b^6}{15\,a^2\,b^1}$$

$$= a^5\,b^7$$

Questions -

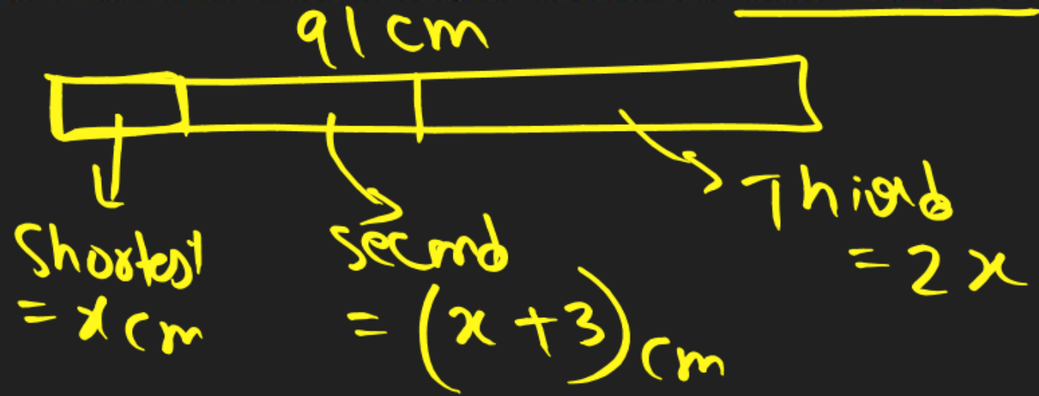
A man wants to cut three lengths from a single piece of board of length 91 cm. The second length is to be 3 cm longer than the shortest and third length is to be twice as the shortest. What is the possible length for the shortest piece?

(a) 22 cm

(b) 20 cm

(c) 15 cm

(d) 18 cm



$$x + (x+3) + 2x = 91 \text{ cm}$$

$$\Rightarrow 4x + 3 = 91$$

$$\Rightarrow 4x = 88 \Rightarrow x = 22 \text{ cm}$$

Questions -

If $2^{x+y} = 2^{2x-y} = \sqrt{8}$, then the respective values of x and y are

(a) $1, \frac{1}{2}$

(b) $\frac{1}{2}, 1$

(c) $\frac{1}{2}, \frac{1}{2}$

(d) None of these

$2^{x+y} = 2^{2x-y} = \sqrt{8}$

$2^{x+y} = (2)^{\frac{3}{2}}$ & $2^{2x-y} = (2)^{\frac{3}{2}}$

$\sqrt{8} = (8)^{1/2} = (2^3)^{1/2} = (2)^{\frac{3}{2}}$

$x + y = \frac{3}{2} = 1.5$

$2x - y = \frac{3}{2} = 1.5$

$1 + 2(1) = 3$

$2x = 3$

$x = \frac{3}{2}$

Questions -

$$\frac{xy}{x+y}=20,\quad \frac{yz}{y+z}=40,\quad \frac{zx}{z+x}=24$$

(a) (120, 60, 30)

(b) (60, 30, 120)

(c) (30, 120, 60)

(d) (30, 60, 120)

$\frac{120\times60}{120+60} = 40$

$\frac{60\times30}{60+30} = 20$

(c) $\frac{30\times120}{30+120} = 24$

$\frac{30\times120}{30+120} = 24$

Questions -

$$\frac{4}{x}-\frac{5}{y}=\frac{x+y}{xy}+\frac{3}{10}, \quad 3xy=10(y-x)$$

(a) (2, 5)

(b) (5, 2)

(c) (2, 7)

(d) (3, 4)

$x=2$
$y=5$

$3(2)(5) = 10(5-2)$
$= 30 \quad = 30$

$\frac{4}{2}-\frac{5}{5} = \frac{2+5}{10}+\frac{3}{10}$

$= 2-1$

$= 1$

$= \frac{7}{10}+\frac{3}{10}$

$= \frac{10}{10}$

$= 1$

Questions -

$2C + 1T =$

4 tables and 3 chairs together cost ₹2,250 and 3 tables and 4 chairs cost ₹1,950. Find the cost of 2 chairs and 1 table.

(a) ₹550

(b) ₹1005

(c) ₹750

(d) None of these

$4T + 3C = 2250 \times 4$

$3T + 4C = 1950 \times 3$

$16T + 12C = 9000$

$9T + 12C = 5850$

$7T = 3150$

$T = 450$

$T = 450$

$C = 150$

Now

$4(450) + 3C = 2250$

$3C = 2250 - 1800$

$C = 150$